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PATENT

S/N Unknown

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	M. Zafar A. Munshi	Examiner: Unknown
Serial No.:	Unknown (Parent: 09/042,255)	Group Art Unit: Unknown
Filed:	Herewith	Docket: 1080.165US3
Title:	AN IONICALLY CONDUCTIVE POLYMERIC COMPOSITION (as amended)	

PRELIMINARY AMENDMENT

BOX PATENT APPLICATION
Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This is a Divisional Application of S/N 09/042,255, in response to the Restriction Requirement mailed July 19, 1999. Please amend the application as follows:

In the Drawings

Applicant requests voluntary drawing amendments for Figs. 1A, 1B, 2A, 4 and 5 as marked in red on a photocopy of the drawing enclosed. Formal drawings reflecting these amendments are included as replacement drawings.

For Figs. 1A, 1B and 4, "(Prior Art)" has been added to the caption.

For Fig. 2A, elements 102 and 120 have been changed to 100 and 106, respectively, to correct mismarked elements, and element 104 has been deleted.

For Fig. 5, element 80 has been added to identify an unmarked element.

In the Title

Please amend the title to read --AN IONICALLY CONDUCTIVE POLYMERIC COMPOSITION --.

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Page 1, line 1, please delete "BACKGROUND OF THE INVENTION", and insert therefore the following:

-- CROSS-REFERENCE TO RELATED APPLICATIONS

This application is a divisional of U.S. Serial No. 09/042,255 filed March 13, 1998, entitled Defibrillator Housing With Conductive Polymer Coating, the specification of which is hereby incorporated by reference. This application is also related to U.S. Serial No. 09/793,000, entitled Method of Making a Stimulator Electrode With A Conductive Polymer Coating, filed on February 26, 2001, also a divisional of U.S. Serial No. 09/042,255, said application hereby incorporated by reference. --

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Please replace the paragraph beginning on page 18, line 22 with the following rewritten paragraph:

An improvement over known titanium electrodes, including "hot can" electrodes such as that disclosed in the '607 patent, is provided by the present invention by increasing the effective surface area of the electrode, overlaying this roughened, or enhanced, substrate with a thin coating comprising a conductive polymer. FIG. 2B illustrates, in partial cut-away, view of the tissue/can interface of a polymer coated can 1 in accordance with the present invention. A conventional defibrillator unit 1, having a titanium housing 10 coated with an insulative material 12, such as parylene, and an uncoated area or window 14 in coating 12, includes an etched, or otherwise surface area enhanced, titanium surface 100 that functions as one of the stimulus electrodes. Over titanium surface 100 is a high surface area noble metal layer 106. Permeating and overlying noble metal layer 106 is a conductive polymeric coating 70 that has a smooth outer surface 90, as best show in enlarged detail in FIG. 2A. The coated unit is prepared as follows. First, the surface area is increased by highly etching the titanium can surface with acid, such as oxalic acid at 80EC for one to two hours, as previously described in U.S. Pat. No. 5,645,030 ("the '030 patent") for transvenous electrodes, the disclosure of which is incorporated herein by reference. In this way, the surface area of the substrate is increased by as much as 20 times over the planar surface area of the original can. Next, a very thin stable coating of electrode material,

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such as platinum, is deposited on the etched substrate in such a way that the platinum layer literally follows the contours of the etched pattern, or porous structure. This is accomplished by ion beam deposition, sputtering, evaporation, plasma spraying, chemical methods, or other means. Care is taken to make the platinum layer continuous but not so thick that it fills in the voids, or completely blocks the etched pattern with the coating material. In this way a high surface area platinum is generated which retains a great deal of the original surface roughness. Although the preferred coating material is platinum, another similarly stable electrode material, such as ruthenium, rhodium, palladium, osmium, iridium, or an alloy of any of those metals, could be substituted with good results.

Please replace the paragraph beginning on page 25, line 28 with the following rewritten paragraph:

Fig. 4 is an enlarged detailed illustration fo the can/tissue interface with a conventional IrOx coat 80 adheres to the surface of the titanium housing 10, making up interface 20 between the titanium surface 100 and the adjacent body tissue 30. For porous can surfaces such as a titanium can coated with an oxide such as IrOx, problems of poor interfacial contact with the tissue will occur, similar to the situation for bare titanium cans after repeated shocks. To address this problem, the conductive polymeric coating of the present invention was devised for filing the interstices of the IrOx coating and providing a smooth tissue interface. FIG. 2B illustrates, in partial cut-away, a can 1 produced in accordance with the 80 and the polymeric coating 70 of the present invention.

Please replace the paragraph beginning on page 30, line 6 with the following rewritten paragraph:

Referring to Fig. 5, surface 90 of conductive polyethylene oxide coat 70 is in continuous, direct contact with the adjacent body tissue 30, resulting in a very good interface 20. Conductive polymer coat 70 also completely fills and permeates the porous structure 112 resulting in the realization of the full beneficial potential of the IrOx layer 80.